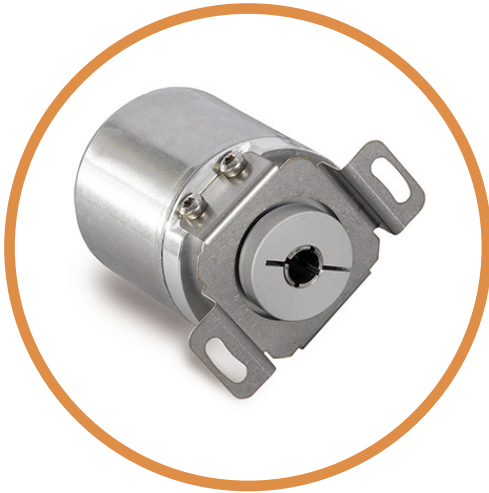# | THK4

MAGNETIC ENCODERS - CANOPEN ABSOLUTE MULTI TURN

Features

THK4 is a Ø36mm multiturn encoder with CANopen interface :

- Compact and robust design.
- Blind shaft Ø 6 mm version.
- Precision sealed bearings.
- High temperature performance –30°C to 70°C.
- Hall effect technology.
- Multiturn encoding based on magnetic pulse counter. No batteries used.
- CANopen interface, binary code.
- 12 bits resolution = 4096 steps / turn.
- Number of turns : 13 bits = 8192 turns.
- Polarity inversions and surges protections.
- High integration SMD technology.

SPECIFICATIONS

Electrical

Interface	According to ISO 11898
Transmission	Max 1 MBauds
Internal cycle time	<600 µs
Supply	10 – 30Vdc
Consumption	max 0,5W
Accuracy	+/- 1,5°
EMC	EN 61000-6-4 EN 61000-6-2
Electrical life-time	> 10^5 h

Mechanical

Material	**Cover:** nickel-plated steel **Body:** aluminium **Blind shaft:** stainless steel
Maximal loads	Axial : 40 N, Radial : 110 N
Shaft inertia	≤ 30 g.cm^2
Torque	≤ 3 N.cm
Max. speed (continuous)	12 000 rpm
Shocks (EN 60068-2-27)	≤ 100 g (demi-sinus, 6 ms)
Shocks (EN 60028-2-29)	≤ 10 g (demi-sinus, 16ms)
Vibrations (EN 60068-2-6)	≤ 10 g (10Hz… 1 000Hz)

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Mechanical (Continued)

Weight (approx.)	150 g
Operating temperature	- 30 ... + 70°C
Storage temperature	- 30 ... + 70°C
Relative humidity	98 % without condensation
Protection grade	IP54

TRANSMISSION MODES

POLLED mode	By a remote-transmission-request telegram the connected host calls for the current process value. The absolute rotary encoder reads the current position value, calculates eventually set-parameters and sends back the obtained process value by the same identifier
CYCLIC mode	The absolute rotary encoder transmits cyclically - without being called by the host - the current process value. The cycle time can be programmed in milliseconds for values between 1 ms and 65536 ms
SYNC mode	After receiving a sync telegram by the host, the absolute rotary encoder answers with the current process value. If more than one node number (encoder) shall answer after receiving a sync telegram, the answer telegrams of the nodes will be received by the host in order of their node numbers. The programming of an offset-time is not necessary. If a node should not answer after each sync telegram on the CAN network, the parameter sync counter can be programmed to skip a certain number of sync telegrams before answering again.

PROGRAMMABLE PARAMETERS

Operating Parameters	This parameter determines the counting direction, in which the output code increases or decreases. As an important operating parameter the code sequence (complement) can be programmed
Resolution per turn	Value between 1 and 4096 can be programmed
Total resolution "Max range"	This parameter is used to program the desired number of measuring units over the total measuring range. This value may not exceed the total resolution of the absolute rotary encoder.
Preset Value	The preset value is the desired position value, which should be reached at a certain physical position of the axis
Limit Switch, Min. and Max	Two position values can be programmed as limit switches. By reaching these values one bit of the 32 bit process value is set to high level

CONFIGURATION

The standard configuration is : node number = 32 and Baurate = 125kBaud. These configurations can be modified with SDO frames.
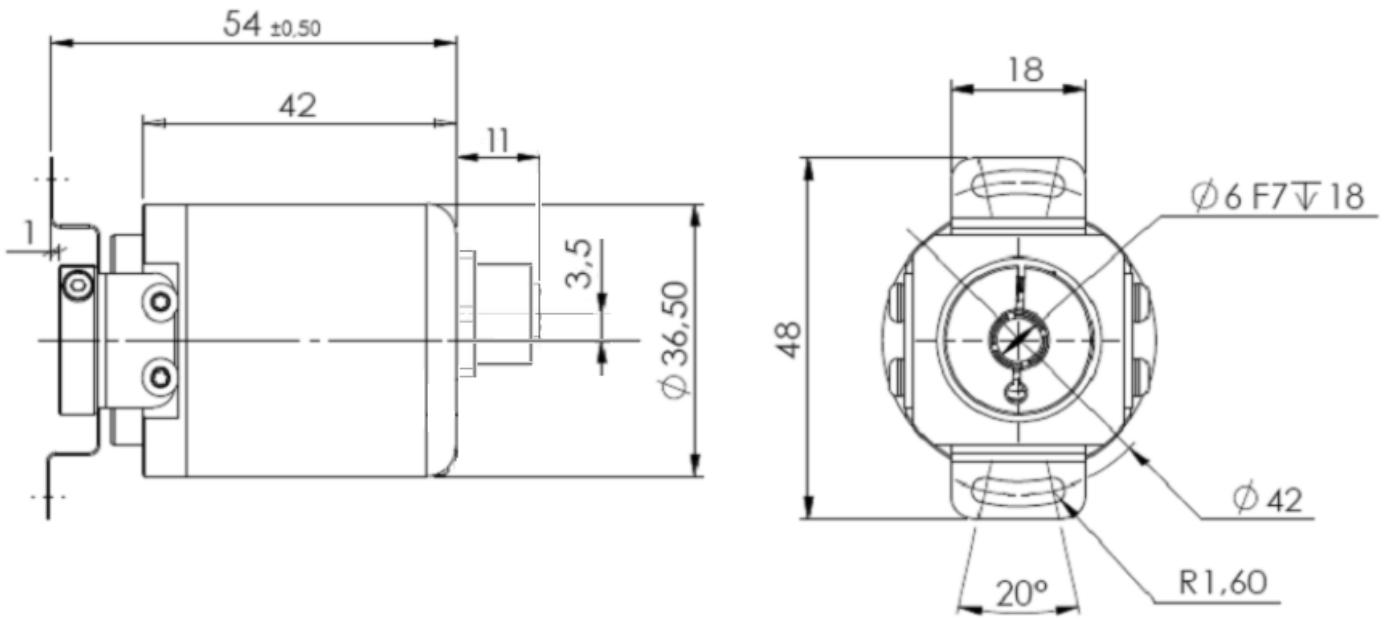The Baudrate can be modified from 20kBaud to 1MBaud. The node number can de programmed between 0 and 89.

CANOPEN CONNECTION

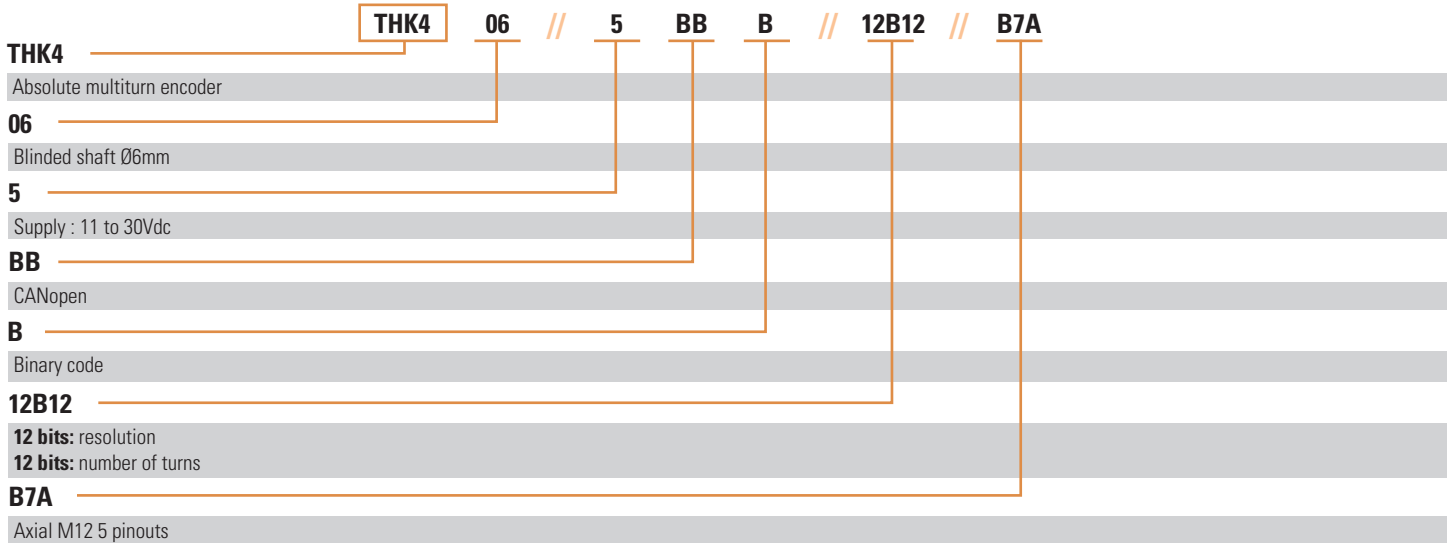| Type	GND	+Ub = 10-30Vdc	CAN-High	CAN-Gnd	CAN-Low
B7	3	2	4	1	5

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THK4 M12 Axial Dimensions

Recommended minimum shaft length (inserted in the blind shaft) : 8mm.
Maximum shaft length (inserted in the blind shaft) : 18mm.

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ORDERING OPTIONS

Contact the factory for special versions, ex: special flanges, electronics, connections…

| THK4 | 06 | // | 5 | BB | B | // | 12B12 | // | B7A |

THK4

Absolute multiturn encoder

06

Blinded shaft Ø6mm

5

Supply : 11 to 30Vdc

BB

CANopen

B

Binary code

12B12

12 bits: resolution
12 bits: number of turns

B7A

Axial M12 5 pinouts

AGENCY APPROVALS & CERTIFICATIONS

CE

WARNINGS

DANGER

RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE
• The product's side panels may be hot, allow the product to cool before touching
• Follow proper mounting instructions including torque values
• Do not allow liquids or foreign objects to enter this product
Failure to follow these instructions can result in serious injury, or equipment damage.

**Danger
Electric shock
risk**

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH
• Disconnect all power before installing or working with this equipment
• Verify all connections and replace all covers before turning on power
Failure to follow these instructions will result in death or serious injury.

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